

MEMORANDUM

SUBJECT: Use Closure Memorandum for Chlorpropham, Chemical Number 018301

FROM: Gary Mullins

TO: Chlorpropham TRED Team

DATE: November 08, 2001

Based on information presented and discussed during the chlorpropham Smart Meetings of May 3, 2001 and May 10, 2001 between the Agency, USDA, and registrants of chlorpropham, this memorandum serves as the use closure agreement to support the tolerance reassessment decision for chlorpropham. This document presents the best available data on chlorpropham use, despite information differences within the industry.

Chlorpropham is primarily used as a plant growth regulator for sprout control on post-harvest stored potatoes. There are three active Special Local Need (SLN) Section 24(c) registrations for use on Easter lilies (for bud removal and to decrease botrytis infection) and ginkgo trees (for flower removal and fruit prevention). There is an additional SLN Section 24(c) registration for use as an aerosol application to post-harvest potatoes. For purposes of assessing risks associated with the use of chlorpropham and for reassessing tolerances, the supported uses are potatoes, Easter lilies, and ginkgo trees (Table 1).

Application timing of chlorpropham includes dormant, pre-bloom (for Easter lilies and ginkgo trees), and post-harvest use on potatoes in storage. Post-harvested stored potatoes are the only food/feed use supported. Typically, chlorpropham is applied as a sprout inhibitor to fall-harvested potatoes that will be stored longer than 3-4 months (approximately 60% of the total fall-harvested crop). Application rates vary depending on method of application, length of storage, and storage temperature. Potatoes going from harvest directly into the processing or fresh market channels are not treated with chlorpropham.

Stored potatoes destined for processing are treated with chlorpropham by the aerosol method at a maximum single application rate (and total amount applied) of 165% of the standard rate of 1 lb a.i./600 cwt (hundredweight). Stored potatoes destined for the fresh market are treated with chlorpropham by the aerosol method at a maximum single application rate (and total amount applied) of 145% of the standard rate of 1 lb a.i./600 cwt (Table 2). The application rates for Pennwalt DECCO 273 (EPA Reg. No. 2792-41) are higher, but the product registrant has recently submitted a request for voluntary cancellation of this registration. Additionally, there is a SLN Section 24(c) registration with a higher standard application rate of 1 lb a.i./400 cwt for use in Maine only to control problems associated with high humidity. This registration provides for a maximum single application rate (and total amount applied) of 165% of the standard rate of 1 lb

a.i./400 cwt for use on potatoes in long-term (> 9 months) storage destined for processing.

Chlorpropham is not applied to potatoes until they have been in storage for two weeks and have undergone proper suberization. Typically, an aerosol application is designed to hold potatoes in storage for 4 to 6 months. Based on registrant information, approximately 33% of the annual total crop of stored potatoes receive a second aerosol application to further inhibit sprouting when efficacy from the first application becomes ineffectual. A small number (between 5% and 10%) of potatoes in long-term storage that are intended for the fresh market receive a direct spray application of an emulsifiable concentrate (EC) at the packing facility at a maximum application rate of 2 lb a.i./2,000 cwt. This direct spray application may be in addition to the maximum amount applied by aerosol to potatoes in storage that are intended for fresh market. Note that the figures on the annual total stored potatoes receiving multiple applications are only estimates based on interpretations of available data. Current labels do not restrict or limit the number of aerosol applications to stored potatoes, as long as it does not exceed the maximum total amount applied (denoted in Table 1).

Easter lilies

Approximately 300 lbs of chlorpropham active ingredient are annually used on Easter lilies by 9 growers of Easter lilies in Curry County, Oregon, and Del Norte County, CA to treat about 150 acres. A maximum single application rate of 4 lbs a.i. per acre is used for chemical removal or debudding of flower buds in field grown Easter lily bulbs, and to decrease the incidence of botrytis disease infection on Easter lily bulbs.

Ginkgo Trees

Approximately 300 to 400 lbs of chlorpropham a.i are annually used on ginkgo trees in Washington, DC. The pesticide is applied as a foliar spray with a mist blower at a dilution rate of 4 lbs a.i./151.5 gallon of water. Note that an application rate (e.g., lbs a.i./acre) is not specified on the label.

Table 1 Comparative Information For Chlorpropham

Crop	Single Max Rate^{1,2}	Storage Application Total^{1,2}	No. Appl./ Yr	Lbs A.I. Applied/Yr	Application Method	Application Timing
Potatoes (post-harvest) stored	Aerosol: 1.65 lb a.i./600 cwt ³ for processing 1.45 lb a.i./600 cwt for fresh market One SLN registration has a rate of 1.65 lb a.i./400 cwt	Aerosol: 1.65 lb a.i./600 cwt for processing 1.45 lb a.i./600 cwt for fresh market One SLN registration has a rate of 1.65 lb a.i./400 cwt	1-2	445,600	Aerosol	Aerosol: one application after two weeks storage; reapplications may be made if potatoes are held in storage longer than originally anticipated. Application rate and frequency is based on storage temperature and number of months storage time (see Table 2).
Potatoes (post-storage) Fresh market	Direct Spray: 2 lb a.i./2,000 cwt	Direct Spray: 2 lb a.i./2,000 cwt	1		Direct Spray	Direct Spray: one application at time of packing
Easter lilies	4 lbs a.i./Acre	Total Seasonal Application	1	300	Low pressure pump sprayer	1 application made when lily buds are up to ½ inch long
		4 lbs a.i./Acre	2			2 applications within a 1 week period when lily buds are up to ½ inch long
Ginkgo	3 lbs a.i./151.5 gallons of water (0.02 lbs a.i./gallon of water)	3 lbs a.i./151.5 gallons of water	1	300-400	Apply with a mist blower to nearly the point of runoff	One application annually in April

¹ Storage Application Total = maximum amount of a.i. that can be applied during storage

² Based on Recommended Chlorpropham Rate Table on product label (see Table 2)

³ Hundredweight (cwt) or one hundred pounds of potatoes

Table 2: Recommended Chlorpropham Rate

TIME	STORAGE TEMPERATURE				
MONTHS	40°F	45°F	50°F	55°F/1	60°F/1
1	80%	90%	100%	110%	120%
2	85%	95%	105%	115%	125%
3	90%	100%	110%	120%	130%
4	95%	105%	115%	125%	135%
5	100%	110%	120%	130%	140%
6	105%	115%	125%	135%	145%
7	110%	120%	130%	140%	150%
8	115%	125%	135%	145%	155%
9	120%	130%	140%	150%	160%
10	125%	135%	145%	155%	165%

/1 Rates for 55°F and 60°F are for processing potatoes only.

Chart assumes treatment soon after suberization time.

Calculate the rate needed with the following formula:

$$\% \text{ of Standard Application Rate} = (2 \times T) + [(5 \times M) - 5]$$

Where : Standard Application Rate = 1 pound active ingredient/600 cwt

T = Storage Temperature

M = Number of Months Storage Time

If potatoes are held in storage longer than originally anticipated, the potatoes may be retreated. Using the above chart, the retreatment dosage is equal to the total amount required for the extended storage time less the amount used for the original storage time.